

REMARKS

Applicants appreciate the thoroughness with which the Examiner has examined the above-identified application. Reconsideration is requested in view of the amendments above and the remarks below.

Prior art rejection of claims 1, 3, 4, 7, 9, 10, 13, 15 and 16

Claims 1, 3, 4, 7, 9, 10, 13, 15 and 16 stand rejected under 35 USC § 103 as being obvious from Sarukkai U.S. Patent No. 6,571,288 in view of Smocha et al. U.S. Patent No. 6,694,288. Applicants respectfully traverse this rejection.

Claims 1, 7 and 13

Applicants' invention as recited in claims 1, 7 and 13 is directed to a method and associated computer program product and program of instructions for managing server network computing resources having a workload of a given type. The invention in particular a) collects real-time performance data regarding the server network computing resources running under the workload, b) analyzes the real-time performance data and the forecast to identify a critical server network computing resource, and c) automatically adjusts a capacity of the server network computing resource to provide steady-state performance of the resource under the workload.

The Sarukkai patent is directed to a method of separately measuring the capacity of individual servers in a multiple server network within a cluster, and using the measurement to rebalance the relative weight of the server in the network cluster. This is done by using a capacity prober to set the respective weights for all the servers in the cluster to the new

relative weight in the load balancer connected to the network cluster. See Sarukkai column 4, lines 39-42 and 62-65. In order to do so, Sarukkai must take each server in the cluster off line and stress test it to measure its capacity. See Sarukkai column 3, lines 3-6. The Sarukkai method merely uses off-line stress tests to subsequently rearrange the relative weight of the servers in the network. As Sarukkai states, "[t]he result is better load balancing which provides a reliable means of fairly sharing network resources" (column 4, lines 43-45) and "the operation of the cluster is better optimized" (column 3, line 9).

Sarukkai must shut down each server, one at a time - something that applicants' method does not require - and run an off-line test. By contrast, applicants' invention collects "real-time performance data ... running under the workload."

Moreover, unlike applicants' invention, Sarukkai does not add or subtract and capacity to the network – he merely rearranges the manner in which it is balanced among the servers. There is no disclosure or suggestion by Sarukkai of "automatically adjusting a capacity of the server network computing resource" as in applicants' invention as defined in claims 1, 7 and 13. Such capacity may include, for example, a central processing unit (CPU) microprocessor, computer memory, storage, or other hardware resource necessary to maintain the system at steady state operation. See specification page 7, lines 25-29. (Particular capacity resources are defined in claims 6, 12 and 18-21.)

The Examiner acknowledges "Sarukkai does not explicitly teach collecting performance of the server in accordance with the type of workload." Office action, p.2 (emphasis in original). The Examiner then cites the Smocha patent as disclosing this feature. However, the Smocha patent is directed to a method for analyzing performance of a network-

accessible server, and does not disclose or suggest adjusting capacity of a server network, as in the present invention. Like Sarukkai, Smocha also only simulates a client behavior, and does not use "real-time performance data ... running under the workload" as applicants do. Thus, Smocha does not remedy the deficiencies of Sarukkai described above.

Accordingly, the hypothetical combination of Sarukkai and Smocha does not render obvious the claimed invention to one of ordinary skill in the server network computing art since they do not address automatically adjusting server network capacity, and their combination (even if proper) does not arrive at applicants' claimed invention.

Claims 3, 9 and 15

Dependent claims 3, 9 and 15 add the subject matter of setting threshold values for the performance data and identifying the server network computing resource in accordance with the threshold values. Presumably the Examiner is citing Smocha, not Berg at column 11, lines 15-30 as disclosing such. However, Smocha does not disclose identifying the server network computing resource, since he is directed only to performance of a single, stand-alone server. This citation does not disclose server network computing resources, or any identification of server network computing resources. Claims 3, 9 and 15 are therefore not obvious from the combination of Sarukkai and Smocha.

Claims 4, 10 and 16

Claims 4, 10 and 16 recite notifying a user of the server network computing resources when the critical resource is a [server network computing] hardware resource, and notifying the user when the capacity of the [server network computing] hardware resource is adjusted.

For this subject matter, the Examiner cites Smocha at column 1, lines 60-65 and column 12, lines 16-23.

Smocha discloses analyzing various parameters in a network accessible server and sending statistically significant patterns to a user and suggesting likely causes for the parameter values. There is no disclosure or suggestion in Smocha that this refers to a server network computing hardware resource, or notification to the user when the capacity of the hardware resource is adjusted. Accordingly, the present invention as recited in claims 4, 10 and 16 is not rendered obvious from the cited art.

In summary, applicants' invention provides an unobvious automated method of managing server network computing resources by adjusting the resource capacity under load, and does not rely on off-line stress-testing and rebalancing as in Sarukkai, or simulated client behavior as in Smocha.

Prior art rejection of claims 5, 6, 11, 12 and 17-21

Claims 5, 6, 11, 12 and 17-21 stand rejected under 35 USC § 103 as being obvious from Sarukkai in view of Smocha, further in view of DeLuca et al. U.S. Patent No. 5,848,270. Applicants respectfully traverse this rejection.

Claims 5, 11 and 17-21

Claims 5, 11 and 17-21 recite that there is initially providing additional [server network computing] hardware resources available to, but unused by, the server network computing resources. The Examiner acknowledges, "Sarukkai and Smocha do not explicitly teach providing additional hardware resources available to, but unused by, the server

network computing resources." Office action, p.4. The Examiner cites for this subject matter the disclosure of DeLuca at column 11, lines 15-19.


DeLuca is directed to a method for modeling process capacity required by a server system, without requiring the construction of the server system. Column 2, lines 41-44. The portion of DeLuca cited by the Examiner merely compares specifications of a modeled server system to an existing server system. No actual additional unused but available hardware resources are provided to a server system by DeLuca. Therefore, the combination with DeLuca does not render obvious the present invention defined by claims 5, 11 and 17-21.

Claims 6, 12 and 18-21

Claims 6, 12 and 18-21 specify that the additional hardware resources are CPUs, computer memory and/or computer disk storage. The Examiner cites the same portion of DeLuca as cited for claims 5, 11 and 17. Again, since DeLuca does not actually provide any unused but available to an actual server network, applicants' invention as defined by claims 6, 12 and 18-21 are not obvious from a combination of Sarukkai, Smocha and DeLuca.

It is respectfully submitted that the application has now been brought into a condition where allowance of the entire case is proper. Reconsideration and issuance of a notice of allowance are respectfully solicited.

Respectfully submitted,


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